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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,220	05/14/2001	Roger Sandstrom	98003-UTAP	4894

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11/25/2002

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EXAMINER

HAWKINS GAY, JENNIFER M

ART UNIT PAPER NUMBER

3672

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,220

Applicant(s)

SANDSTROM, ROGER

Examiner

Jennifer H Gay

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jansson et al. (US 4,760,887) in view of Saunders et al. (US 4,549,754).

Jansson et al. discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread (15) located on a first drill string element (10 and 11).
- A female thread (13) located on a second drill string element (12).
- The first and second drill string elements each include respective impact surfaces (16 and 18) that are arranged to abut each other.
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (43.3%, see col. 2, lines 10-20 and col. 3, lines 25-35).

Jansson et al. discloses all of the limitations of the above claims except for a conical or tapered thread. As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Jansson et al. in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

3. Alternately, claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jansson et al. (US 4,760,887) in view of Saunders et al. (US 4,549,754) and Eklof et al. (US 4,687,368).

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Jansson et al. discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread (15) located on a first drill string element (10 and 11).
- A female thread (13) located on a second drill string element (12).
- The first and second drill string elements each include respective impact surfaces (16 and 18) that are arranged to abut each other.
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (43.3%, see col. 2, lines 10-20 and col. 3, lines 25-35).

Jansson et al. discloses all of the limitations of the above claims except for the threaded connector having a conical or tapered thread and except for the first and second drill string elements including impact surfaces that are arranged to abut each other.

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Jansson et al. in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

As seen in Figure 1 and 3, Eklof et al. teaches a threaded connection for a percussion rock drill. The threaded connection includes conical male threads (13) located on a first drill string element (10) and conical female threads (12) located on a second drill string element (11). The first element includes a first impact surface (16) and the second element includes a second impact surface (15). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the first and second impact surfaces taught by Eklof et al. on the threaded connector of Jansson et al. in order to have provided a means for limiting the degree to which the two elements were threaded together, i.e. to have ensured that the threads of the two elements were completely in contact.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson (US 4,861,209) in view of Saunders et al. (US 4,549,754).

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Larsson discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread located on a first drill string element (see Abstract).
- A female thread located on a second drill string element (see Abstract).
- The first and second drill string elements each include respective impact surfaces (see Abstract and col. 2, line 58-col. 3, line 16).
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (37.7%, see col. 3, lines 17-23).

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Larsson in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

5. Alternately, claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson (US 4,861,209) in view of Saunders et al. (US 4,549,754) and Eklof et al. (US 4,687,368).

Larsson discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread located on a first drill string element (see Abstract).
- A female thread located on a second drill string element (see Abstract).
- The first and second drill string elements each include respective impact surfaces (see Abstract and col. 2, line 58-col. 3, line 16).
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (37.7%, see col. 3, lines 17-23).

Larsson discloses all of the limitations of the above claims except for the threaded connector having a conical or tapered thread and except for the first and second drill string elements including impact surfaces that are arranged to abut each other.

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Larsson in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

As seen in Figure 1 and 3, Eklof et al. teaches a threaded connection for a percussion rock drill. The threaded connection includes conical male threads (13) located on a first drill string element (10) and conical female threads (12) located on a second drill string element (11). The first element includes a first impact surface (16) and the second element includes a second impact surface (15). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the first and second impact surfaces taught by Eklof et al. on the threaded connector of Larsson in order to have provided a means for limiting the degree to which the two elements were threaded together, i.e. to have ensured that the threads of the two elements were completely in contact.

Response to Arguments

6. In view of applicant's amendment, the objection to the specification has been withdrawn.

7. In response to applicant's argument that Larrson was indicated as an "A" reference on an international search report, indicating that it did not anticipate the claimed invention, the examiner notes that she has a different opinion than the search report and is not required to agree with that report.

8. In response to applicant's request to have the references cited on the IDS filed on 22 June 2001, the examiner would like to note that an IDS qualifies as a formal citation. Further, the foreign references cited on the above IDS were not considered because a translation or statement of relevance was not provided; these references will not be considered until such time as a

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translation or statement of relevance is provided. Lastly, US 4,861,209 was not cited on the Notice of Reference Cited mailed with the previous Office Action because it was cited on the above IDS thus was already cited in the case.

9. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references made of record disclose various thread connectors for drilling assemblies.


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

JHG

November 18, 2002


DAVID BAGNELL
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